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| EXAMINER |
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ABELSON, RONALD B

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| ART UNIT | PAPER NUMBER |
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2666

DATE MAILED: 06/27/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/348,865

Applicant(s)

MEDINA ET AL.

Examiner

Ronald Abelson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 2,3,16,17,27 and 28 is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7,8,14,15,18,19,25 and 26 is/are rejected.
- 7) ☐ Claim(s) 9-13 and 20-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7, 8, 14, 18, 19, and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Daines (US 6,192,422) in view of Grochowski (US 6,205,524).

Regarding claims 7 and 18, Daines teaches a method and apparatus for a crossbar/repeater (fig. 2) communicating with at least one device (fig. 2 node 14).

The system comprises N ports (fig. 2: Port A,B,..N).

Each port comprises a link logic unit to receive messages and data from a respective device (fig. 2 box 18, col. 4 lines 53-65).

Each port comprises an input buffer to store data from the respective device (fig. 2 box 20).

Each port comprises a port arbiter to control the transmission of data to the respective device (fig. 2 box 25, col. 5 lines 25-27).

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The input buffer transfers the stored data to the corresponding output buffer of a selected one of the other one of the N ports. As seen in the fig. 2, data is transferred from the input buffer of one port to the output buffer of another port via the bus (box 22).

Daines fails to teach N-1 output buffers each corresponding to another of the N-1 ports.

Grochowski teaches N-1 output buffers each corresponding to another of the N-1 ports (fig. 1 box 15, col. 7 lines 53-55).

The examiner corresponds the one queue and N columns of Grochowski with the applicant's N columns. Note, as stated by Grochowski, each column corresponds to a specific port.

Therefore it would have been obvious to one of ordinary skill in the art, having both Daines and Grochowski before him/her and with the teachings [a] as shown by Daines, a method and apparatus for a crossbar/repeater communicating with at least one device, and [b] as shown by Grochowski, N-1 output buffers each corresponding to another of the N-1 ports, to be motivated to modify the system of Daines by replacing the single output buffer (fig. 2 box 24) with N-1 output buffers. This would improve the system by allowing for multiple ports to transmit data to one port simultaneously.

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Regarding claims 8 and 19, the link logic unit determines a type of message from the respective device (col. 4 lines 60-62). In order for the MAC to convert the digital data to an Ethernet frame, the MAC must know what type of data exists.

Regarding claims 14 and 25, although Daines is silent on if the device is unable to receive data, the devices provides a message to the link logic means, the inventor teaches the inhibiting signal in the reverse direction (col. 7 lines 5-13). It would be logical to have inhibiting signals traveling in both directions. Just as in port input buffer is monitored, the node's buffer could be monitored for an overflow condition. If this condition is met, the device could send an inhibit signal to the port. Then the link logic means (fig. 2 box 18) would inform the arbiter (fig. 2 box 25) to inhibit communication. This would improve the system by preventing the device (fig. 2 box 14) from overflowing.

3. Claims 1, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daines (US 6,192,422) in view of Grochowski (US 6,205,524) and Ogimoto (US 6,032,205).

Regarding claim 1, Daines teaches a method and apparatus for a crossbar/repeater (fig. 2) communicating with N devices

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each associated with and connected to one port (fig. 2 see node 14 and other nodes).

The system comprises N ports (fig. 2: Port A,B,...N) wherein a plurality N of devices each associated with and connected to one port (fig. 2 see N nodes/computers connected to N ports).

Each port comprises an input buffer to store data from the respective device (fig. 2 box 20).

Each port comprises a port arbiter to control the transmission of data to the respective device (fig. 2 box 25, col. 5 lines 25-27).

Daines fails to teach: a plurality N-1 port output buffers, wherein each of the plurality of N-1 of port output buffers receives the messages only from a corresponding input buffer corresponding to one of the N-1 other ports, a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer, and a shutoff means, indicating to said device connected to said one port not to send data for the port.

Grochowski teaches a plurality N-1 port output buffers, wherein each of the plurality of N-1 of port output buffers receives the messages only from a corresponding input buffer corresponding to one of the N-1 other ports (fig. 1 box 15, col. 7 lines 53-55). The examiner corresponds the one queue and N

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columns of Grochowski with the applicant's N columns. Note, as stated by Grochowski, each column corresponds to a specific port.

Therefore it would have been obvious to one of ordinary skill in the art, having both Daines and Grochowski before him/her and with the teachings [a] as shown by Daines, a method and apparatus for a crossbar/repeater communicating with at least one device, and [b] as shown by Grochowski, $N-1$ output buffers each corresponding to another of the $N-1$ ports, to be motivated to modify the system of Daines by replacing the single output buffer (fig. 2 box 24) with $N-1$ output buffers. This would improve the system by allowing for multiple ports to transmit data to one port simultaneously.

Ogimoto teaches a plurality of $N-1$ of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer (fig. 1 box 122-125, col. 13 lines 43-49); and a shutoff means, indicating to said device connected to said one port not to send data for the port (col. 13 lines 43-49).

Therefore it would have been obvious to one of ordinary skill in the art, having both the combination of Daines and Grochowski and Ogimoto before him/her and with the teachings [a] as shown by the combination of Daines and Grochowski, a method

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and apparatus for a crossbar/repeater communicating with at least one device, and [b] as shown by Ogimoto, a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer, and a shutoff means, indicating to said device connected to said one port not to send data for the port, to be motivated to modify the system of the combination of Daines and Grochowski by connecting the output buffer monitoring circuit of Ogimoto to each of the output buffers of Daines. This would improve the system by preventing overflow in the output buffers.

Regarding claim 4, a port arbiter to control the transmission of data to the respective device (Daines: fig. 2 box 25, col. 5 lines 25-27). Regarding the limitation providing messages only if the device is not full, it is obvious not to send data to a device that is full. If the device is full, it cannot process more information.

Regarding claim 5, each port comprises a bus link connected to the device (Daines: fig. 2 element 16).

4. Claims 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Daines and Grochowski

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as applied to claims 7 and 18 above, and further in view of and Ogimoto.

The combination of Daines and Grochowski is silent on if an nth one of the N-1 output buffers is at least a predetermined capacity, a signal is sent to the nth one of the port arbiter of the other of the N-1 ports to inhibit further transmission.

Ogimoto teaches a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer (fig. 1 box 122-125, col. 13 lines 43-49); and a shutoff means, indicating to said device connected to said one port not to send data for the port (col. 13 lines 43-49).

Therefore it would have been obvious to one of ordinary skill in the art, having both the combination of Daines and Grochowski and Ogimoto before him/her and with the teachings [a] as shown by the combination of Daines and Grochowski, a method and apparatus for a crossbar/repeater communicating with at least one device, and [b] as shown by Ogimoto, a plurality of N-1 of fullness sensors, each associated with one port output buffer, for measuring the fullness state of its associated port output buffer, and a shutoff means, indicating to said device connected to said one port not to send data for the port, to be motivated to modify the system of the combination of Daines and

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Grochowski by connecting the output buffer monitoring circuit of Ogimoto to each of the output buffers of Daines. This would improve the system by preventing overflow in the output buffers.

Allowable Subject Matter

5. Claims 2, 3, 16, 17, and 27-28 allowed.
6. Claims 9-13 and 20-24 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter.

Regarding claims 2, 17, and 28, nothing in the prior art of the record teaches or fairly suggests each device additionally comprises N-1 device output buffers, one per the N-1 other ports of the crossbar, in combination with the other limitations listed in the claim.

Regarding claims 9, 10, 21, 22, nothing in the prior art of the record teaches or fairly suggests neither a local link message nor a switch link message, in combination with the other limitations listed in the claim.

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Regarding claims 11 and 22, nothing in the prior art of the record teaches or fairly suggests the device being a switch or a second crossbar, in combination with the other limitations listed in the claim.

Regarding claims 16 and 27, nothing in the prior art of the record teaches or fairly suggests a network switch in communication with one port of a crossbar having N ports where the network switch comprises N-1 output buffers, each corresponding to N-1 other ports of the N ports of the crossbar, in combination with the other limitations listed in the claim.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Abelson whose telephone number is (703) 306-5622. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.


Ronald Abelson
Examiner
Art Unit 2666

June 19, 2003


DOUGLAS
TRAVEL EXAMINER